King County's SciFYI

King County
Department of Natural Resources and Parks
Water and Land Resources Division

A digest of current natural science issues in King County | Article 1009-1 | SPECIAL STUDENT EDITION - Summer 2010

Special Student Edition

The summer 2010 edition was written by the students and staff of the King County YouthSource Summer Environmental Water Resources class.

Thoughts, Observations and Discoveries

King County YouthSource Summer Environmental Water Resources Class

By Luzviminda Uzuri "Lulu" Carpenter, Program Aide

Instructor Roger Rigor and Larry Jones, King County water quality scientist, orient classmembers.

The 2010 King County YouthSource Summer Environmental Water Resources class was sponsored by the U. S. Department of Labor, Juvenile Rehabilitation Administration, and the King County Work Training Program. The program was conducted in partnership with King County's Department of Natural Resources and Parks, along with the King County Superior Court and the Highline School District.

Water! What a precious resource that is forgotten and taken for granted; this is similar to our young people at times. Through this "Water Quality" course, I learned to appreciate youth more and understand their ability to learn and feed their hunger for knowledge despite circumstances and hardship. Combining youth and water makes natural sense, because both are needed in order to create a sustainable future. As people within King County attempt to create foundations for our environment, we are also creating foundations for youth to flourish by giving them tools to survive within the system and providing sustainable options through learning about work ethic and care for one's environment.

This year's program consisted of 13 students ranging between the ages of 15 and 18. Each student chose to be in this summer class to improve themselves and their education. Students received one full credit for completing the classroom course assignments and work requirements within the curriculum. The class doubled as a job training internship and students were paid by the hour and learned basic job skills. Some main objectives of this year's program were to connect water resources to their lived experience and to make work and class an interactive learning experience (See "Field Study, Lecture and Deadlines" chart for class and work activities).

The classroom activities were designed to provide additional information and enhance their real life experiences (See curriculum on page 4). With curriculum that included multiple readings, research, and lectures. The students learned a lot and had much to discuss and relate to. They also watched films about the Earth, the oceans and the sun, such as "Fresh Water, Deep Ocean, Shallow Seas," and "Ice Worlds" to learn about traditional sciences. These videos were matched with personal stories that told the troubled history of our poisoned waters, harmed farmland and difficulties in the food industry. Those videos included "Erin Brockovich," "Poisoned Waters," "Food, Inc.," "The Story of Stuff," "Trouble the Waters," Jay Z's documentary "Water for Life," and news stories on BP Oil spills and more.

(Continued on next page).

Guest speaker Kristi Brown of That Brown Girl Catering

Removal of invasive plants at Pigeon Point restoration site with the Nature Consortium

Studying insects at Coal Creek

(Continued from front page).

Students were challenged by stories of water – from shortages and lack of water in various countries to hurricanes and natural disasters – that demonstrate who we are as humans, just below the surface. The students had critical questions and deep observations that they brought forth during films discussions and even more so during workshops with speakers.

Removing invasive weeds at Cottage Lake

Speakers included Gary Owens of JustWater, Gabriel Teodros and Katrina Pestano, aka Rogue Pinay (community teaching artists) discussing hip hop, water, artists for change, and globalization, Kristi Brown of That Brown Girl Catering and GO Live!, Michael Woo and Khepra Ptah of Got Green, Christine Guiao talking about water, DNA, and the body, Kiana Davis discussing Jay Z and a collective poem (see Page 5), and Aaron Dixon discussing environmental injustice.

Each speaker spoke with patience and passion about topics ranging from aliens and science fiction to the power of people to change their world beginning with one drop of water and one bite of food. Every lecture, workshop, community speaker, and video connected back to their life and their interconnectedness to water. In the end, our hope is that they see not only water, but also themselves as a valuable resource.

The students were able to see other natural resources outside of class and not just talk abut them. Each site visit demonstrated to students the value of water in their lives. The field trips were educational and organized to expose students to various job and career opportunities. Students learned about these opportunities connected to improving their lives and others while having an environmental benefit.

Educationally, each tour, field trip, or physical activity enhanced what was taught in the classroom through lectures, interactive workshops, films, research, and community speakers. Students learned about invasive plants such as blackberries around the Duwamish and then went to pull these tough plants out with the Nature Consortium. Each trip was work, but they learned at Coal Creek how healthy a stream is from observing bugs, and learned at Shadow Lake Bog how land reforests itself next to a watershed to protect the water source long term. They learned about the source of their drinking water at the Cedar River Watershed and about where water goes after it is flushed at the South Wastewater Treatment Plant in Renton.

Through going to places such as the Seattle Aquarium, University of Washington Botanical Gardens, the Arboretum, Ballard Locks, Queen Anne and Magnolia bluffs, and the Duwamish River, the students were absorbed into the world of land and water. They were also absorbed by people, including those who gave tours, steered boats, drove cars, worked the land, and most importantly, those who shared with the students the passion behind the work they do. From beginning to end, students were engaged in learning about the water that surrounded them and that was in them.

Each article was written by the students and is heartfelt. King County Staff assisted with editing, photos and the newsletter design. However, the articles are the individual student's observations, thoughts and discoveries except as noted. We hope you can hear the wonder and feel their enlightenment and curiosity about the world.

Luzviminda "Lulu" Carpenter

Lulu graduated from Washington State University with her M.A. in American Studies and her B.A. in English. Her research focused on multiracialism and mixed race identity within the context of American society and culture. She has worked within various community and non-profit organizations around issues of diversity, cultural competency, and inclusion. Her work includes developing and consulting on programs, workshops, trainings, and presentations. Also, she has published writings and is a well known community advocate. Carpenter has worked at Edmonds Community College as an AmeriCorps' Service Learning Coordinator. Currently, she works for the John Stanford Public Service & Political Science Academy of Franklin High School as the Community Projects Manager. Carpenter has shown her commitment for youth and has brought this knowledge and experience to the classroom, field work, and office at YouthSource.

This we know.
All things are connected
Like the blood
Which unites one family….
Whatever befalls the earth,
Befalls the sons and daughters
of the earth.

Man did not weave the web of life;
He is merely a strand in it.
Whatever he does to the web,
He does to himself.

– by Ted Perry, inspired by Chief Seattle

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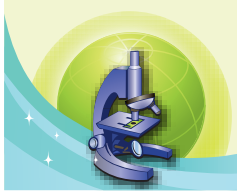

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Water and Land Resources Division

A digest of current natural science issues in King County | Article 1009-2 | SPECIAL STUDENT EDITION - Summer 2010

YouthSource Summer Environmental Water Resources Class

OVERVIEW

by Roger Rigor, Instructor

The scale at which our Earth is changing because of modern human activities is unprecedented. Overexploitation and pollution are pushing our planet toward an environment that might alter ecological balances in a global scale. James Lovelock's *Gaia Hypothesis* considers the earth as an organism, where its parts are actually intertwined towards a single *living* system. All things alive and their environment work together and, along with the view of Fritjof Capra, the "nature of the whole is always different from the mere sum of its parts." And the basis for these parts that function as a system is the use of water and its availability to most earthly species.

Just like its organisms, which are over 60 percent water, Earth is mostly covered by water. Ninety seven percent of the Earth's water is saltwater, which is of course, not suitable for us to drink, as it contains too much salt. Only 3 percent of the world's water is freshwater, and only about one fifth of that 3 percent is available for us to use (the remainder is locked up in glaciers and ice sheets).

Water was never a concern for the thousands of years man survived. Societies and migration routes were purposefully established near areas with plenty of freshwater. Today, the concern over the availability of fresh water comes from not only the quantity of freshwater available to us, but also the quality of that water. As human population grows exponentially, so do our rates of water consumption and water pollution.

Already, 25 percent of the world's people do not have access to safe water, with five to 10 million people a year dying from water borne diseases and this number has been greatly increasing over the last decade. The United Nations predicts that by year 2025, one in every three people in the world will experience a shortage of freshwater, and there will be particular shortages in the Middle East, India, Pakistan and China.

What does this mean? Currently, oil is a nonrenewable resource over which there are already immense political and social conflicts. This century, we could see this change: Freshwater could become the main source of conflict. Major wars could be sparked because of lack of water. People can survive without oil but we definitely cannot survive without water. We are rapidly converting water from a renewable resource into a nonrenewable resource.

The five-week course will culminate with a special edition of the newsletter SciFYI with written contributions from this year's cohort of students. Through this integrated classroom and field study approach, high school students will get a glimpse of the current state of our environment, especially the state of our water supply and get involved locally as part of the community's attempt to avoid the planet's ecological dilemma tipping over to a global certainty.

About the Instructor
Rogelio 'Roger' Rigor

A teacher with the Seattle School District, Roger has been with the Youth Source Summer project for a third consecutive year. He has been a teacher for the past 16 years with the last 13 years as a Math/Science teacher at the Seattle Public Schools' Middle College High School (MCHS). Starting off his first year at South Seattle Community College MCHS, he spent the next 11 years at Ida B. Wells School for social justice, the University of Washington MCHS site. He returned to South Seattle Community College MCHS site last fall. Roger is now back at Wells School teaching Math and Science. He was born and raised in the Philippines but graduated at Western Washington University, and took his masters in Math Education at the University of Washington.

Curriculum

WEEK 1: July 5 – July 9

July 6 – Orientation
- Initial Lecture: Biosphere
- Laurel Preston: Sci-FYI Newsletter Overview
- Reading of the Week

July 7 – Lecture
- Film: Fresh Water
- Internet Activity

July 8 – *Field Trip:* *Seattle Aquarium/ UW Botanical Garden*

July 9 – Lecture
- Film: "*Deep Ocean*"
- SciFYI writer's workshop

WEEK 2: July 12 – July 16

July 12 – *Field Trip:* *King County South Treatment Plant Tour*
- Post tour lesson/discussion/work

July 13 – Lecture
- Reading of the week
- Film: "*Erin Brockovich*"

July 14 – *Field Trip:* *Cedar River Watershed Tour*
- Post tour lesson/discussion

July 15 – CPR Training

July 16 – Lecture
- Film: "*Shallow Seas*"
- Guest Speaker: Garry Owens (former Black Panther/community organizer of LELO & JustWATER)
- SciFyi Writer's Workshop: Mos Def's "New World Water" song & freewrite

WEEK 3: July 19 – July 23

July 19 – Lulu's Workshop: "Water is Life, is Art, is HipHop"
- Coca-Cola lecture
- Guest Speaker: Gabriel Teodros (local teaching artist)

July 20 – *Field Work:* *Invasive Plant Clearing at Shadow Lake Bog*

July 21 – Lecture
- Film: "*Taking Root*"
- Reading of the week

July 22 – *Field Trip:* *King County Environmental Laboratory Tour on Lake Union, Ballard Locks & Magnolia Bluff and Queen Anne Bluff*
- Post tour lesson

July 23 – Lecture
- Film: "*Ice Worlds*"
- SciFyi Workshop
- Guest Speaker: Christine Guiao "Water, DNA, & the Body"

WEEK 4: July 26 –July 30

July 26 – Lecture
- Reading of the Week
- Film: "*Natural Connections*"
- SciFyi Workshop with Guest Speaker: Ms. Davis: Making a collective "Water Poem"
- Documentary: "Diary of Jay-Z: Water for Life"

July 27 – *Field Work:* *Coal Creek*
- Orientation: "Macro-Inverbrate Sampling and Training"
- Lecture & working on drafts

July 28 – *Field Work:* *Nature Consortium's Forest Restoration)*
- Internet Activity: BPI Oil Spill on democracynow.org

July 29 – Guest Speakers/Film
- Guest Speaker: Larry Jones from King County "Cottage Lake Water Quality"
- Film: "*Poisoned Waters*"
- Guest Speaker: Aaron Dixon (Ex-Black Panther) "Environmental Racism and Justice"

July 30 – *Field Trip:* *Duwamish River Clean up w/Puget Sound Keepers boat ride and visit to Duwamish Tribe Longhouse*
- Final drafting workshop
- Submission of Sci-Fyi material for printing

WEEK 5: August 2 – August 6

Aug. 2 – Reading of the Week
- Recap lecture
- Guest Speakers: Michael Woo and Khepra from Got Green "Water, Urban Environments, Green Jobs, etc."

Aug. 3 – Recap Lecture
- Finish newsletter drafts
- Internet activity: storyofstuff.com (discussion of consumerism and overconsumption)

Aug. 4 – Lecture/Discussion/Review-Course Recap
- Film: "*Food, Inc.*"
- Guest Speaker: Kristi Brown of That Brown Girl Catering & GO Live! (with healthy snacks including homemade hummus, vegetables & chips)

Aug. 5 – *Field Work:* *Cottage Lake Weeding*

Aug. 6 – Final Exam
- Final drafts of Sci-Fyi articles due
- Guest Speakers: YouthSpeaks by Robin Park & Kyle Riche/Language Arts/LA
- Final Field Trip: WILD WAVES!

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Collective Water Poem

by Water Quality Class - Summer 2010 (Compiled and edited by Kiana Davis & Luzviminda "Lulu" Carpenter)

Together we watched Jay-Z's documentary and made a collective poem by gathering people's thoughts on water and combined their individual rivers into this one stream of consciousness.

Water IS...

Health,
Is everything important,
Making life beautiful,
A source of hope that keeps us alive.
Something we need daily.
It is important though we take advantage of it,
It is special,
It is "who I am and how I flow",
Who we are and how we flow, because...

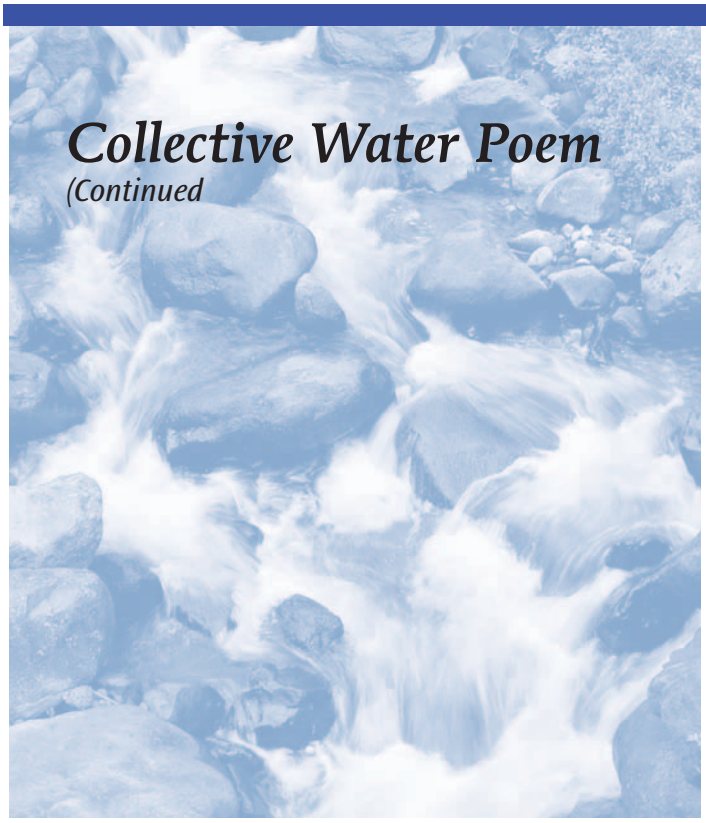
Water SOUNDS LIKE...

Someone swimming,
Nature from afar,
The ocean,
A cry for help in times of need,
Our dreams rolling across the land with life,
It can be a car crashing,
Or an abused child,
But it can also be peaceful waves,
Because it sounds like me,
It sounds like us.

Water GIVES...

Good hygiene so people can live,
But also it is reflections of the truth,
Loyalty,
Energy,
Wisdom,
Life,
And hydration.
It gives life to our body.

(Continued on next page)



Collective Water Poem
(Continued

Water UNDERSTANDS...
That it is good,
so understands ***people's selfishness,***
And ***how to live,***
Because ***people are always in need of it.***
So ***it understands the world, but people don't understand it.***
Water understands ***that we abuse it like there is an unyielding supply.***
So water understands ***the needs of people,***
Of ***life,***
Of its purpose,
Our energies and intentions,
And knows ***where you are,***
And where we want to be.

Water NEEDS...
Nurturing and healing,
And ***time for us to listen to the possibilities of tomorrow,***
Air to be cleaned,
Water needs ***honor and gratefulness,***
And ***not to be neglected,***
But ***respected...***
To be in the world,
It needs ***conservation.***

Water WILL NEVER...
Give you a bad feeling,
Unless it ***be forgotten,***
Because it will never ***fail to quench your thirst,***
It may not ***be here forever,***
But it will never ***disappear,***
Or ***run out,***
Because ***if we don't leave it, it won't leave us.***
Water will never ***leave our system,***
But will it ever ***be free in America?***

Because...

Water BRINGS...
People life and death,
And blesses us with drops like kisses.
It brings ***people from the bottom to the top,***
And ***cleansing,***
Joyfulness,
A connection to the world,
And its possible ***happiness.***
Water brings ***good health,***
A chance for survival,
And all things from ***fear and peace.***

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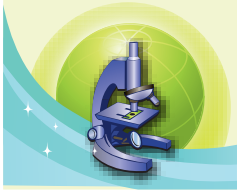

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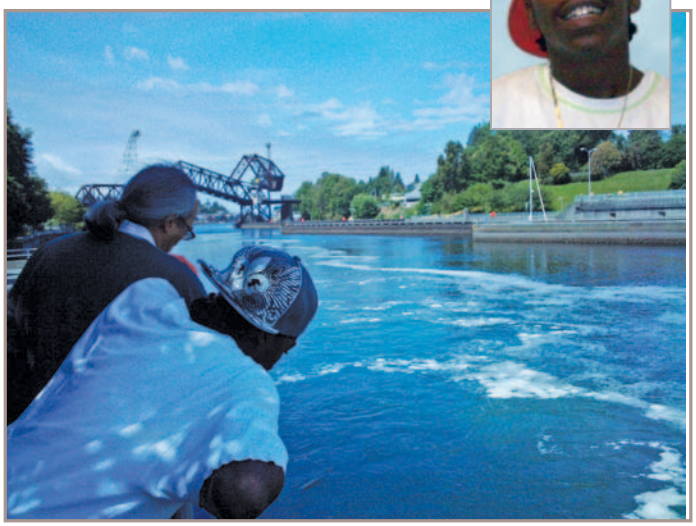
Ballard Locks

By William Myles



My field work study trip to the Ballard Locks, which is located in Ballard, was one of the best. We got to see all the boats enter and leave the Locks. It was just an interesting process. We saw the water rise and fall like and elevator, pushing six to seven boats up to the height of the freshwater, or down to the height of the saltwater. Also, while looking in the water we saw either seals or sea lions chasing and trying to trap a school of salmon so that they could feed on them. There were hundreds of people out there maybe even more, so there had to be a lot of tourists coming from all different places around the world.

Before I ever came to the Ballard Locks I just heard of it from others. But one thing I could tell you is that there's a wonderful view and it's just a cool place to be. You might want to go read a book, or take a jog up there one day and enjoy the view. I learned a few things from visiting the Ballard Locks. One of them was I just found out that seals and sea lions were predators to the salmon.

I also learned that water is used to elevate boats passing through to the two bodies of water from Lake Washington to Puget Sound. Every time boats come in and out of the Locks they're also releasing water through a lock system. I also saw how all the salmon go up a fish ladder and into freshwater so they could lay their eggs. This is called spawning.

Finally, I learned that no one besides members of certain tribes is authorized to fish at the Ballard Locks. They are the only people who can fish there because of their history; they've been here for thousands of years. This land had been their home and that is why that whole area is "no fishing area to anyone" except certain Native American tribes.

The Ballard Locks are important because without it boaters wouldn't be able to enter and leave Lake Washington in Seattle. They are also a wonderful place to check out. Just go relax, watch exciting things and have a good time. I also liked how there were a lot of walking trails too. This is a place to walk or jog and check out the view. There is lots of grass, places to sit and a bunch of people to see. It is a place not only with its peaceful beauty but also a very useful site for the city.

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YouthSource CPR

By Ron R. Roman

I was introduced to Youth Source on July 6, 2010. Along with our studies and work, we went to different places such as an aquarium, a sewage treatment plant and the Ballard Locks, but the course work that stood out the most to me was the King County CPR training class or "cardiopulmonary resuscitation." There I learned how to treat a person when they are having a stroke, choking, or having a heart attack.

Before I started learning about CPR, I already knew how to get something out of someone's throat if they are choking. I knew that you should call 911 if the person in need is very bad off.

I also learned that you should put the patient's head up so they could breathe. The reason you do that is because moving someone suspected of suffering a spinal injury should only occur to establish an open air passage to the lungs so that they can breathe.

Also, before you start the CPR process you should check and see if the scene is safe to enter. This is a safe thing for yourself, because you don't know if their blood is infected or not. If you have a cut or something the blood may get into that. HIV and AIDS are transferred through blood, especially if the one being treated has a wound or skin opening. So it is critical for you to be careful.

I learned how to do first aid and CPR throughout the day. I learned that you have to position the person's back on a flat and firm surface. Kneel next to the chest, then get as close to the patient as possible, then bring your body up and over so your shoulders are close to the patient.

I also learned how to use the Automated External Defibrillator, or AED. When using the AED, you have to place one pad a few inches under the nipple closest to you and right on the ribs, and place the other pad on the side of the person's chest. After that you have make sure no one is touching the person (including yourself). Then press the button to release the shock and resume chest compressions. Continue to do CPR unless the AED directs you to stop.

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Bug Monitoring

By Dominique Sharteer

We toured Coal Creek Park in Bellevue to look for "bugs" in the stream as part of a project to sample for what are called macro-invertebrates. At the site, there were a lot of big rocks and the creek's current was pretty fast. You can see fish and logs in certain places and in the creek there were bugs I had never seen before. I was expecting to see flies, worms and even cockroaches. I wasn't expecting to find the different insects that we did. We got to look at some of the bugs using field microscopes.

We looked for bugs as a way to find out if a stream is clean and if there is food for fish. If the water in the stream is not polluted then King County Science staff posts this information on their website www.kingcounty.gov/enviroment/data-and-trends/monitoring-data/stream-bugs. This website provides information on which streams or doing well and the bug conditions.

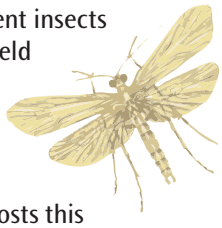
I learned that some of the bugs are "tolerant," meaning they can survive in clean water or dirty water. Other bugs are considered non-tolerant, and will die right away if they are in dirty water. And there are bugs that are somewhat tolerant, which means some will die and some will live. It all depends on how polluted the water is.

There is this interesting bug called a caddis fly. We found some caddis fly larva and learned that these are one of the tolerant bugs. As a worm, its saliva is like glue and before this insect becomes full grown it eats a lot and then sleeps for a long time in a cocoon that it built. Its cocoon is built out of small pebbles in the creek and the saliva is used to help build its cocoon. In the cocoon it changes to a long-winged fly and lay eggs that turn into worms and starts the process all over again.

Nasir Sheikh studying bugs.

There are other bugs that don't have legs and they are just slimy like worms. They are very disgusting looking. Most of these bugs except a few can't survive unless they are in water and the others that could survive have to wait until they grow their wings. So they can fly away. Also, hornets eat some of these bugs.

It is a good thing that I learned about the relationship between bugs and clean water in streams. I can now go look at streams and kind of know if they are polluted or not and I leaned about different types of bugs that I didn't know existed before.



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Cedar River Watershed

By Nasir Sheikh

Have you ever wondered where your drinking water comes from, and if it is fresh, clean and safe to drink? The Cedar River Watershed supplies fresh drinking water to more than 1.3 million people in King County. That's a lot of people and a lot of water. The watershed has been the region's primary water supply for more than a century. The 91,000 acre watershed extends east to the crest of the Cascade Mountains and stretches west to the Landsburg Diversion Dam. This diverse watershed supports 83 fish and wildlife species of concern.

The watershed has been protected for more than a century and the city has spent about $90 million over many years to improve habitat conditions for fish and wildlife. Why? Because that's where the water we drink comes from! If the water gets polluted, the people of the greater Seattle wouldn't have a clean drinking water supply.

The City of Seattle is lucky to have some of the nation's freshest and cleanest water, because of the surrounding mountain range that provides us snowcapped mountain runoff. The Cedar River Watershed has been protected and will be protected for years to come. The watershed visitor center welcomes the public offering views of the environment, history of the watershed, and information on the different kind of animals that live there.

Going to the watershed and experiencing something I had never seen before or think of seeing was a great experience. I got to see fresh water, walk around the forest and was about 3000 feet above sea level. That's the highest I've ever been. It's an experience I'm never going to forget.

The area was filled with people who love nature. You might think it's a boring place to work or visit, but actually it looked like the people who worked there enjoyed what they were doing. Everybody had a smile, understood what was going on and was happy to see teenagers there, learning something new.

For more information on the Cedar River Watershed and the city of Seattle Public Utilities see the link below.

http://www.seattle.gov/util/About_SPU/Water_System/Water_Sources_&_Treatment/Cedar_River_Watershed/SPU03_001888.asp

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King County's SciFYI

King County
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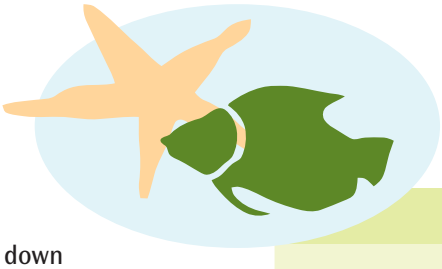
A digest of current natural science issues in King County | Article 1009-8 | SPECIAL STUDENT EDITION - Summer 2010

Seattle Aquarium

By Lee Cavett

Our field trip to the Seattle Aquarium was an enlightening experience. It allowed me to observe and study the habitats of various aquatic animals, specifically, the biotic and abiotic factors of those habitats. Such biotic factors include other aquatic animals in an individual animal's habitat and abiotic factors such as temperature, water and light.

These environments contain a variety of animals including sharks, octopus, jellyfish and starfish.



The environment of a starfish is a rocky abiotic environment that is located at the very bottom of the sea surrounded by biotic factors such as seaweed and other aquatic life.

Sharks are found in all seas. They generally don't live in freshwater. Sharks are common down to depths of 2,000 meters or about 7,000 feet.

Octopus is found in every ocean at almost every depth. The large ones are found mainly in the Arctic. These creatures live in small holes and crevices in rocks and coral because they have no backbone. They can squeeze themselves into spaces other animals can't go in.

Jellyfish are from the cold Arctic to warm tropical seas of the Pacific, Atlantic and Indian oceans. They exist in different levels of water from the surface to its very depths, and they require specific conditions to survive depending on the makeup of their bodies.

You can learn more by visiting the Seattle Aquarium or go to their web site:

http://www.seattleaquarium.org/netcommunity/page.aspx?pid=183

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Marine Ecosystem

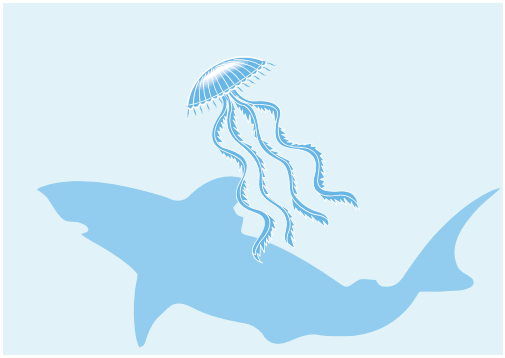
By Emer Gonzales

The marine ecosystem is important in this world because they provide a lot of things for everyone. The animals that live in water still affect the whole food chain, that's why it's important to know how to take care and respect their environment so they don't die out and become extinct. If that happens, people will experience a major shortage of food in a lot of places in the world.

When I visited the Seattle Aquarium I saw a lot of fish and the different habitats they lived in.

Some knowledge I already had was that fish have simple needs. They need water to survive. One of the things I've learned from visiting the site was that jellyfish have stinging tentacles that can hurt their prey. They use these to protect themselves from other predators so they're not all that vulnerable. They also travel in big groups.

I learned that starfish act like vacuums for the sea floor. They eat anything that has died and lying on the ocean floor. That's why they are a "keystone" species. They keep that particular ecosystem in balance. Some of their biotic factors are other ocean floor species and other starfish that come in various sizes and colors. The abiotic factors that are present in their environment are the rocks, temperature, seafloor and the amount of sunlight.



"Producers" that I saw at the aquarium are coral reefs, meat corals and hammer corals. They are the ones who make their food using photosynthesis and are prey to primary consumers. They eat small fishes.

Some "Consumers" are mainly fishes such as the Pacific cod, rockfish or flatfish. There are also predators that spend most of their time hunting for other organisms, like sharks, which swim very fast so that makes them pretty dangerous but efficient predators. In fact, our class saw seals or sea lions go after a school of salmon near the Ballard Locks.

The experience of going to the Seattle Aquarium has made me realize that every living thing has its own purpose and role in this world.

The lessons that I've gained can be used to help the community by not harming the environment, by not polluting water, and by conserving my water use at home. In the future, by doing this in the present we and our children don't need to struggle just to be able to survive.

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South Wastewater Treatment Plant

By Jonathon Laws

Have you ever wondered what happens after you flush the toilet? Do you really know what happens to toilet water? Did you know that the average person in Washington State uses and average of about 90 gallons of water per day! Well, I am here to tell you about the South Wastewater Treatment Plant in Renton, where I recently took a tour, and it really sparked my interest.

In 1958, King County voters created the Municipality of Metropolitan Seattle (METRO) to provide wastewater treatment services and to clean the waters of Lake Washington and Elliott Bay. By 1965, South Plant started operations as a secondary treatment facility. South Plant operates 24 hours a day, 365 day a year. Nearly 130 trained professionals, which include operators, lab technicians, maintenance employees, process control personnel and administrative staff work there.

At South Treatment Plant, the focus is to remove specific wastes that are in the water. Those wastes consist of bacteria, trash, chemicals and organic wastes. When the water leaves the plant and is released into the Puget Sound, it is 85 percent cleaner than when it entered the plant. The South Treatment Plant is located on 94 acres of land in Renton. The plant serves more than 1.4 million people and has a 420-square-mile service area.

The plant's wastewater treatment facilities produce many valuable resources that can be used within the plant and throughout the region. Three main resources are produced at the plant. They are reclaimed water, biosolids and energy recovery. Reclaimed water is used for cleaning and as a water source for the treatment plant. Then even more water undergoes further treatment for irrigation and industrial use by businesses, parks and nurseries near the treatment plant.

Biosolids are produced in digester tanks, which like the human body, are heated up to around 98 degrees Fahrenheit and has a floating lid (roof). Some of the plant's biosolids are sold as a soil amendment for agriculture in eastern Washington. The rest is used in forest fertilization or composted for use in landscaping and gardening. Digester gas is a by-product of the biosolids digestion process. It is a gas composed of methane and carbon dioxide produced by active anaerobic bacteria. After being cleaned, this gas is sold to Puget Sound Energy and used on-site as an energy source.

The South Treatment Plant has consistently been recognized by the National Association of Clean Water Agencies for excellence in wastewater treatment.

For more information on South Plant and wastewater treatment go to on a tour or see the King County web pages at: http://www.kingcounty.gov/environment/wtd/About/System/South.aspx.

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